

## **DETAILED ACTION**

This Office action is in response to Applicant's request for reopening prosecution due to a new ground of rejection during an Appeal, dated 11/13/2009.

Applicant's arguments filed 11/13/2009 have been fully considered. Rejections and/or objections not reiterated from previous Office Actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

### ***Claim Rejections - 35 USC § 103***

1) Claims 1-3, 5, 8-11, 14-17, 19, 22, 30-32, 34, 36-43, 45-48, 50-64 and 69-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al. (USP 5,888,491) in view of Majeti et al. (USP 7,025,950).

Mitra et al. disclose oral compositions (see column 15, lines 38-52) containing the instantly claimed polymers. When applied as dentifrices, the polymers do not contain pendant ethylenically unsaturated groups e.g., pendant "reactive groups", as is clear from the use of the provisional term "may" at column 9, line 59. See also column 16, lines 17. See also working example 1 at column 18, wherein the polymer used plainly does not contain any pendant ethylenically unsaturated groups; compare and

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contrast this with working example 2, where the inventors took additional steps to provide such groups to a UV curable coating (not a dentifrice). Unit A, present in polymers is comprised of specific groups, including hydroxy groups such as hydroxypropylmethacrylamide, fluoride-releasing groups such as 1-N,N,N-triethylammonium ethyl (meth)acrylate (column 4, lines 41-58), i.e. a fluoride ion is the inorganic anionic counterion, and (meth)acrylic esters of fluoroalkylsulfonamido alcohols, where the (hydrophobic) fluorine moiety has up to 21 perfluoro-carbons, (see the table of structural formulae provided at column 5 between lines 23-53). Unit A is derived from an ethylenically unsaturated monomer, such as acrylates, methacrylates, crotonates and itaconates, containing at least one polar or polarizable group, such as hydroxy, thio, amido, cyclic ethers, phosphines, amines, quaternary ammonium, oxy acids of C, S, P and B (column 3, lines 36-38 and lines 48-55). Unit B is a modulating group, which is comprised of methacrylic esters of 1-12 carbon alcohols (column 2, lines 11 and column 5, lines 16-18).

As clear from column 19, lines 56-64 of Mitra, the prior art compositions form hydrophobic coatings on tooth enamel. The compositions are further taught to be useful for the administration of other conventional dentifrice components, e.g., therapeutic agents “such as” fluoride salts (column 15, lines 54-63). Mitra differ from the instant claims, however, insofar as whitening agents such as peroxides are not specifically disclosed.

Majeti et al. teach that hydrophobic polymers which form coatings on tooth enamel are particularly desirable for the delivery of oral care actives, including fluorides

and whitening agents, because they facilitate deposition and retention of same. See column 8, lines 42-56. Useful whitening agents are not limited to hydrogen peroxide, and include other peroxides such as carbamide peroxide, as well as peroxyacids, chlorites, etc. (column 9, lines 12-25). From about 0.1% to about 20.0% of teeth whitening agent provide overall cleaning, whitening, stain removal and prevention of stain build-up on teeth (column 8, lines 58-64). Water may be employed in preparation of the composition (column 17, lines 20-27). The method of use comprises contacting a subject's dental enamel surfaces and oral mucosa with the oral compositions; and may be by brushing, rinsing, or contacting the dentifrice by topical oral gel, mouthspray, or other forms such as films or strips (See the passage bridging column 18, line 66 to column 19, line 10).

Generally, it is *prima facie* obvious to combine two compositions, each of which is taught by the prior art to be useful for same purpose, in order to form a third composition to be used for the very same purpose. The idea for combining them flows logically from their having been individually taught in the prior art. See MPEP 2144.06. Accordingly, it would have been obvious to use both hydroxypropylmethacrylamide and 1-N,N,N-triethylammonium ethyl (meth)acrylate as unit A monomers in the polymer of Mitra et al. Furthermore, it would have been obvious to have used a peroxide whitening agent as the oral care active of Mitra, since the same are known oral care actives in hydrophobic polymers as taught by Majeti.

2) Claims 6, 7, 12, 13, 20, 21, 23-25, 27-29, 49 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al. (UDP 5,888,491) in view of Majeti et al. (USP 7,025,950) as applied to claims 1-3, 5, 8-11, 14-17, 19, 22, 30-32, 34, 36-43, 45-48, 50-64 and 69-80 above, and the combination being taken further in view of Aasen et al. (USP 4,861,786).

Mitra et al. and Majeti et al. and the motivation for combining their teachings are discussed supra. The compositions suggested by their combined teachings differ from those of the instant claims insofar as they do not include a fluoride releasing group comprising tetrafluoroborate ions.

Aasen et al. teach that fluoride-releasing monomers containing tetrafluoroborate ions are preferred because of their compatibility with virtually all other comonomers. See the passage bridging column 3, lines 62 to column 4, line 8. Accordingly, it would have been obvious to have used such monomers in the forming the compositions suggested by the combined teachings of Mitra et al. and Majeti et al. in order to take advantage of this art-recognized property. It would have also have been obvious to combine the tetrafluoroborate ion with the 1-N,N,N-triethylammonium ethyl (meth)acrylate monomer, since it requires an anionic counterion.

3) Claims 30-32, 34, 35, 37-43, 45, 50-52 and 60-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rozzi et al. (USP 5,607,663) in view of Majeti et al. (USP7,025,950).

Rozzi et al. is substantially similar to that applied in subsection "1)" supra, except that it teaches the incorporation of hydrophobic hydrocarbon groups such as octadecylacrylate, which the '491 patent lacked (column 5, lines 40-42). Again, note that the use of the provisional term "may" at column 5, line 49; "can't" at column 11, line 43; and "when" at column 12, lines 36 and 46. Again, the prior art discloses dentifrices and teaches the inclusion of oral care actives therein (see the passage bridging column 11, line 60 to column 12, line 19), but differs from the instant claims insofar as peroxide whitening agents are not specifically closed.

Majeti et al. is likewise discussed supra. As before, it would have been obvious to have used a peroxide whitening agent as the oral care active of Rozzi et al. since same are known oral care actives as taught by Majeti et al.

No claims are allowed.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRYL C. SUTTON whose telephone number is (571)270-3286. The examiner can normally be reached on 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frederick Krass can be reached on (571)272-0580. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Darryl C Sutton/  
Examiner, Art Unit 1612

/Frederick Krass/  
Supervisory Patent Examiner, Art Unit 1612